U.S. Department
of Transportation
**Federal Aviation
Administration**

Eastern Service Center

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Proposed Finding of No Adverse Effect for the Boston Logan International Airport RNAV (GPS) RWY 4L Approach Procedure, Boston, MA

To Whom It May Concern,

The Federal Aviation Administration (FAA) is evaluating a new proposed Area Navigation (RNAV) Global Positioning System (GPS) instrument approach procedure at Boston Logan International Airport (BOS). This new procedure would allow for aircraft to land onto Runway 4L with GPS technological automation as well as allow for landing during low visibility conditions. These additional procedural capabilities would increase the safety and efficiency of the airspace around BOS.

Pursuant to 36 CFR 800.4(a), the FAA previously consulted with the Massachusetts Historical Commission to identify the Area of Potential Effects for this undertaking. In continuing with our responsibilities under Section 106 of the National Historic Preservation Act and its implementing regulations, the FAA invites you to participate as a consulting parting and submits this assessment of adverse effects, which concludes with a proposed Finding of No Adverse Effects and our supporting rationale for that finding. The FAA seeks your views or comments on this finding, which can be addressed to the FAA using the email or address given at the conclusion of this letter. Pursuant to 36 CFR 800.5(c), please provide any comments within 30 days from receipt of this letter.

Project Background

As described in greater detail in the FAA's Draft Environmental Assessment (EA), which can be accessed at www.faabostonworkshops.com, the FAA is evaluating a new proposed Area Navigation (RNAV) Global Positioning System (GPS) instrument approach procedure at BOS. This new procedure, which is depicted in Attachments A and B, is needed to allow aircraft to land onto Runway 4L with GPS technological automation. The current absence of an RNAV procedure to Runway 4L precludes use of the runway during low visibility conditions. The proposed procedure route is an overlay of existing arrivals and is expected to lead to a net increase of 255 annual arrivals to BOS generally, which represents 0.1% of the total annual arrivals, and an increase of 359 annual arrivals specifically to Runway 4L. These additional

procedural capabilities would increase the safety and efficiency of the airspace around BOS. Publication of the proposed procedure would constitute an undertaking under Section 106 of the National Historic Preservation Act (NHPA).

Regulatory Overview

Under NEPA, the FAA is responsible for analyzing the impacts of its action on historical, architectural, archeological and cultural resources as part of its broader review of the human environment. Because the National Historic Preservation Act (NHPA) is the principal statute concerning such resources, most of this analysis is conducted in coordination with the process under Section 106 of the NHPA, which requires federal agencies to consider the effects of their projects on properties listed, or eligible for listing, in the National Register of Historic Places (NRHP). As this is an FAA Action, the FAA document *Section 106 Handbook: How to Assess the Effects of FAA Actions on Historic Properties under Section 106 of the National Historic Preservation Act* was consulted and referenced in order to make this determination.

Review of Historic/Eligible Properties

The National Register of Historic Places (NRHP), the Massachusetts Historical Commission, and the Boston Landmarks Commission's data sources were used to gather a comprehensive directory of all potential historic and cultural resources within the APE. A total of 19 properties within the APE were found to be listed in the National Register of Historic Places as historic districts or individual properties in accordance with the criteria described in the NHPA. These 19 properties are identified and described in Table 1. A total of 4,184 state and local designated properties were identified within the APE and are summarized by their location in Table 2. These 4,184 properties represent the group of potential resources that would be evaluated for National Register eligibility. For the purposes of this proposed finding, we assume all of these properties are eligible for the National Register and propose a finding of no adverse effect for all properties within the APE currently listed, determined eligible for listing, and assumed eligible for listing in the NRHP.

Table 1: National Register of Historic Places Properties within the APE

NRHP Property Name	***Brief Property Description***
Milton Cemetery	Milton Cemetery contains some of the best examples of funerary art from the colonial times to the Victorian era. An historic garden cemetery, it was established as the Town's only cemetery in 1672.
Spring Brook Cemetery	The most prominent structure in the cemetery, Card Memorial Chapel, was designed by Charles Eastman & built in 1898 and funded by Simon & Mary Card in memory of their daughter Lulu.
Dorchester Park	Dorchester Park is a historic park bounded by Dorchester Avenue, Richmond, Adams and Richview Streets in the Dorchester neighborhood of Boston, Massachusetts.

NRHP Property Name	***Brief Property Description***
Dorchester--Milton Lower Mills Industrial District (Boundary Increase)	The Dorchester-Milton Lower Mills Industrial District is a historic district on both sides of the Neponset River in the Dorchester area of Boston and in the town of Milton, Massachusetts. It encompasses an industrial factory complex, most of which was historically associated with the Walter Baker & Company, the first major maker of chocolate products in the United States.
Savin Hill Historic District	The Savin Hill Historic District is significant for its association with the development of the area from a mid-19th century speculative housing development for Boston's upper-middle class to a close-knot neighborhood of residents from diverse socioeconomic backgrounds. The surviving historic resources catalogue Savin Hill's rich history and remain a cohesive collection of well-preserved historic homes. The district further attains significance as an intact collection of buildings representing a full range of architectural styles.
Blue Hills Parkway	The Blue Hills Parkway, a 1.5-mile-long boulevard in Boston and Milton, is significant as one of the earliest connecting parkways designed for the Metropolitan Parks Commission (MPC) by Olmsted, Olmsted and Eliot and its successor firm, Olmsted Brothers, and it is emblematic of the firm's principles of parkway creation. A divided highway that runs directly south through early 20"'-century residential neighborhoods, the Blue Hills Parkway directly connects the Blue Hills Reservation (the largest open space in Metropolitan Boston) with Boston, the Neponset River Reservation, and Truman Parkway.
Blue Hills Reservation Parkways-Metropolitan Park System of Greater Boston	The Metropolitan Park System of Greater Boston, in Massachusetts, is especially noteworthy because it is the first regional park system in the United States.
Foxborough Pumping Station	The Foxborough Pumping Station is a historic water pumping station at 25 Pumping Station Road in Foxborough, Massachusetts. Its main pumphouse was designed by Ernest Boyden, a regionally-known architect of water supply systems, and was built in 1891; it is a brick structure with Queen Anne styling. The station also includes several historic wells, a period garage, and the man-made Fales Pond, a once-dammed section of the Neponset Reservoir near the pumphouse.
Old Harbor Reservation Parkways, Metropolitan Park System of Greater Boston	The Old Harbor Reservation Parkways are three historic roads in the Old Harbor area of Boston. They are part of the Boston parkway system designed by Frederick Law Olmsted.
Dorchester-Milton Lower Mills Industrial District	The Dorchester-Milton Lower Mills Industrial District is located on both sides of the Neponset River in the Dorchester area of Boston and in the town of Milton, Massachusetts. It encompasses an industrial factory complex, most of which was historically associated with the Walter Baker & Company, the first major maker of chocolate products in the United States.

NRHP Property Name	***Brief Property Description***
Furnace Village Historic District	The Furnace Village Historic District encompasses the historic colonial industrial area in Easton, Massachusetts. At its center is at the intersection of Foundry street, South street and Poquanticut Avenue. The area was settled in 1723, with industrial activity beginning in 1742. The iron furnace was established in 1751, and for industrial purposes, continued in the 19th century. In addition to the colonial era, there is also an employee of the housing of the 19th century.
Milton Centre Historic District	The Milton Centre Historic District is both the historical and geographic center of the town of Milton. The 23-acre historic district includes Canton Avenue between Reedsdale Road and Thacher and Highland Streets. Milton Centre is historically significant for its association with the development of the town following the relocation of the third meeting house to Academy Hill in 1728, and the subsequent shift of the town center from Milton Hill.
Scott's Woods Historic District	Scott's Woods Historic District is the area of Hillside, Harland and Forest Streets between Randolph Avenue and the ridge between Hancock and Bugbee Hills, now the MDC Blue Hills Reservation. The Scott's Woods Historic District in Milton, Massachusetts is a semirural, residential area that contains a significant concentration of 18th, 19th and early 20th century dwellings and barns that reflect the Town's agricultural and architectural history from 1713 to 1932, the district' s period of significance. Originally known as the "Blue Hill Land," a three thousand-acre tract of land sold by the town of Boston in 1711 to four residents of Milton. The area in the southwest part of Milton is thought to have been named for a member of the Scott Family that lived in the area in the early eighteenth century. Hillside Street, named for being literally on the 'side' of Blue Hill, is the major thoroughfare in the district.
Milton Hill Historic District	Milton Hill Historic District is located on a lofty hill between Milton Village and Algerene Corner, formerly known as Union Square at the junction of Adams and Centre Streets. The Milton Hill Historic District in Milton, Massachusetts is a residential area that contains the most significant concentration of 19th and early 20th century high-style and period architecture in the Town. As Milton developed from a rural community to a prosperous suburb of Boston, Milton Hill, throughout the period of significance, 1740-1945, has been the home of wealthy Milton and Boston business, professional and civic leaders. It began its rise to prominence as an estate district in 1742 with the establishment of Governor Thomas Hutchinson's summer estate. For the next two hundred years, attracted by the rural scenery afforded by the Neponset River and the Blue Hills and the proximity of the Town's commercial center and Boston, prominent families built country homes, a number designed by noted national and local architects, including William Ralph Emerson; Peabody and Steams; and Perry, Shaw and Hepbum.

NRHP Property Name	***Brief Property Description***
Harrison Square Historic District	Clam Point (also known as Harrison Square) is a sub-neighborhood in Boston, noteworthy for its collection of substantial Italianate Mansard residences. The area is known to have the most cohesive, intact collection of mansion-scale, mid-19th century housing in Boston, and includes the Park, Everett, Freeport, Mill, Ashland, Blanche streets, and Victory Road in the Dorchester neighborhood of Boston.
Canton Corner Historic District	The Canton Corner Historic District encompasses the historic town center of Canton, Massachusetts. Centered on the junction of Pleasant and Washington streets, it includes more than 25 properties and 170 acres (69 ha), whose architectural history spans 250 years of occupation and includes the town's major civic buildings.
Ponkapoag Camp of Appalachian Mountain Club	The Appalachian Mountain Club Ponkapoag Camp is one of the original camps of the oldest outing club in the United States, founded in 1876. Early in the twentieth century tent sites were established at the east end of Ponkapoag Pond in the Blue Hills reservation by the president of the Appalachian Mountain Club, William Rogers, who was also an M.D.C. commissioner. The camp represents an early outing club's architecture for "roughing it" and are important as such structures succumb to fire, rot, and vandalism.
Boyden, Seth, House	The Seth Boyden House is a historic house at 135 Oak Street in Foxborough, Massachusetts. The home is significant for its unusual architectural design as well for its association with the Boyden family, whose members were prominent locally and regionally in the 18th and 19th century,
Borderland Historic District	The Borderland Historic District was the 1,200 acre estate of Blanche Ames Ames. The mansion was constructed in 1910 and the property includes a system of ponds, dams, and causeways surrounding the mansion. The exterior of the mansion was built using locally cut field stones. The district is considered significant due to its connection to the estate of Blanche Ames Ames. She was a inventor who was involved in art, farming, engineering and politics. She designed a hexagonal lumber cutter, patented a method for ensnaring airplanes in wires hung from balloons during World War II, and developed a water anti-pollution device in the late 1960s.

SOURCE: National Register Database; https://www.nps.gov/subjects/nationalregister/database-research.htm#table, Adapted by Environmental Science Associates, 2021.

Table 2: Number of State & Local Designated Properties within the APE

Town	***Number of State & Local Designated Properties***
Boston	838
Canton	445
Easton	142
Foxborough	194
Mansfield	190
Milton	1,559
Norton	16
Quincy	2
Randolph	225
Sharon	491
Stoughton	82
Grand Total	**4,184**

Assessment of Noise and Visual Impacts by Proposed Action

In our earlier correspondence, the FAA noted that we are "considering the possibility that changes in noise levels or additional visual impacts from an increase in overflights could alter the character or use of certain kinds of historic properties where a quiet setting is a generally recognized purpose and attribute." In order to address this possibility, an assessment was done to further quantify the auditory and visual impacts on the historic properties within the Area of Potential Effects.

In order to assess the auditory impacts, the FAA used a metric known as Day-night Average Sound Level (DNL). DNL is the standard noise metric used for all FAA studies of aviation noise exposure in airport communities and was used here to assess the potential impact on every identified historic property within the Area of Potential Effects.

DNL is a 24-hour, time-weighted average noise metric, expressed in terms of decibel units of sound heard by the human ear, which accounts for the noise levels of individual aircraft events, the number of times those events occur, and the time of day they occur. DNL is a graphical representation of the distribution of noise over the surrounding area from an airport's average operations. There is one unique modification in that there is a "noise penalty" of any noise generated during "nighttime hours." In the calculation of DNL, for each hour during nighttime hours (10:00 p.m. to 7:00 a.m.), the sound levels are increased by a 10 decibel-weighting penalty (equivalent to a 10-fold increase in aircraft operations) before the 24-hour value is computed. The weighting penalty accounts for the more intrusive nature of noise during the nighttime hours. The significance thresholds for aircraft noise for DNL, as spelled out in FAA Order 1050.1F, are given below.

- For DNL 65 dB and higher: +1.5 dB

This threshold has been used by FAA for many years and is applied at airports across the country and will be used to determine noise impacts on historic properties within the APE. The use of this threshold is consistent with the Section 106 analyses for many FAA projects, including the Northern California and Southern Florida Metroplex projects, two of FAA's most recent projects that also modified the flight path of aircraft through the airspace.

According to FAA Order 1050.1F, a significant noise impact could occur to noise sensitive land uses if it had a level of DNL 65 dB with the Proposed Action and also experienced an increase of 1.5 dB when compared to the No Action Alternative. The FAA also recognizes that, in limited instances, resources that have a "quiet setting" as a qualifying attribute may be adversely affected by noise increases that would otherwise not be significant. There are no NRHP properties with a noise exposure of DNL 65 that experience a 1.5 dB noise increase. Further, the NRHP properties were reviewed and none of them were found to have a "quiet setting" as described in the FAA's Section 106 Handbook.

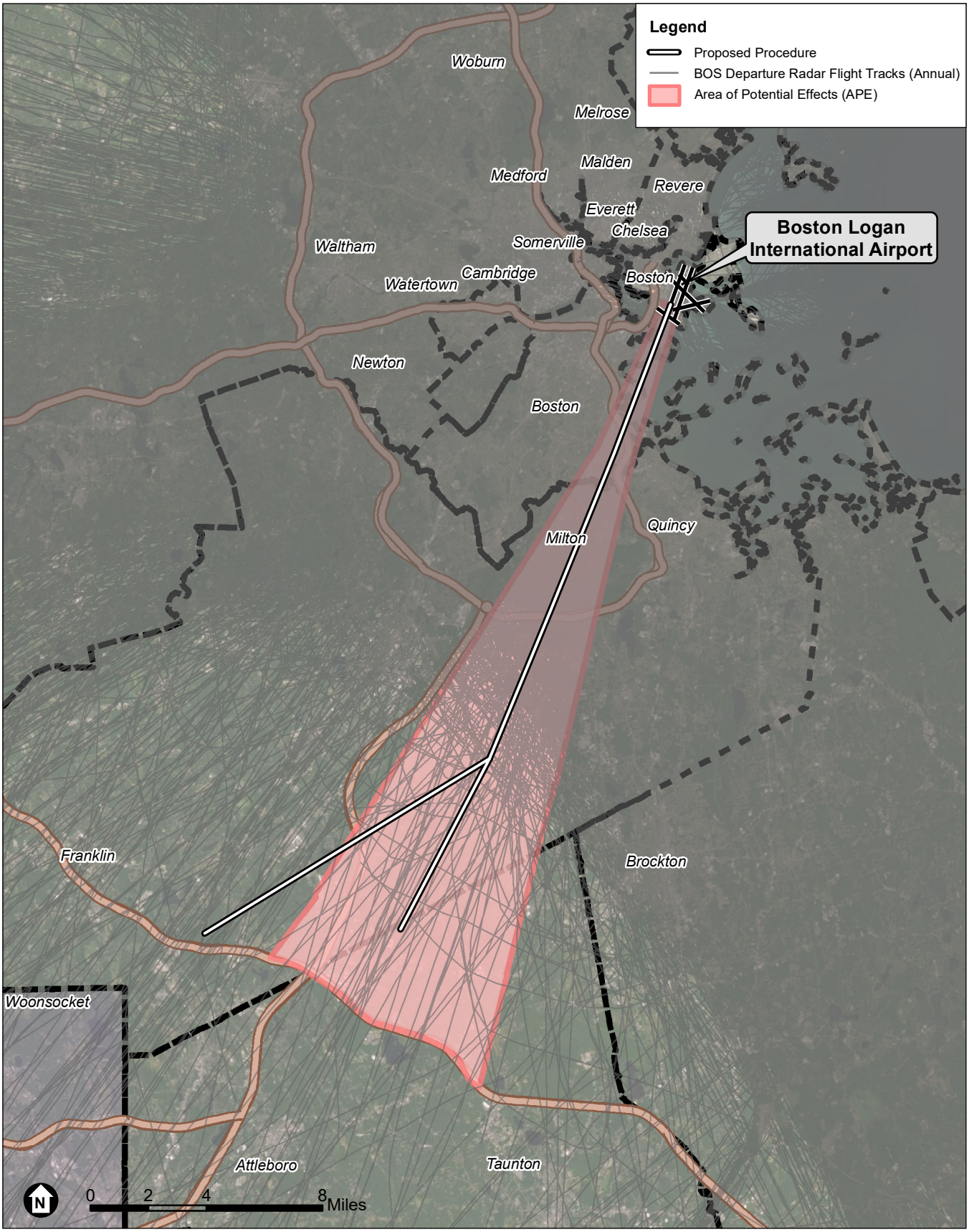
When the analysis is expanded to include the state and local designated properties that are assumed to be eligible for the NRHP, there are no properties that experience a 1.5 dB noise level increase with a proposed action noise level of DNL 65 or greater. As indicated in Table 4.6-3 of the Draft EA, the maximum exposed noise level *decreases* as a result of the Proposed Project

when compared to the No Action Alternative when considering towns/neighborhoods as a whole. Furthermore, as described below, the largest proposed noise changes within the APE are multiple orders of magnitude below the noise thresholds given within FAA Order 1050.1F.

The FAA's noise analysis demonstrates that historic resources will generally experience equivalent noise exposure with the addition of the Proposed Action. Specifically, the maximum change in noise exposure for a historic property is less than 0.2 dB across all historic properties in the APE. For example, one of these properties has a value of 22 dB under the No Action Alternative and 22.1 dB with the Proposed Procedure. Importantly, as depicted in Attachment A, the procedure is an overlay of existing traffic to Runway 4L and is only expected to lead to an annual net increase of 255 arrivals to BOS, out of a current total of 205,837 arrivals. In sum, the FAA will not be introducing audible impacts to resources not already experiencing noise impacts, and any change in noise exposure will be minimal.

In order to assess the potential visual impacts of the historic properties, the data for a year of overflights at BOS from the previous memorandum was reassessed to compare to the newly designated APE. Considering one year of radar track data, the APE experiences 78,879 arrival and 18,989 departure overflights annually. On an average daily basis that corresponds to 216.1 arrival and 52.0 departure overflights. The Proposed Action is estimated to add 255 annual arrival overflights or 0.70 daily average overflights to the APE. When considering the APE as a whole, the increase in overflights would amount to just a 0.26% increase in overflights and would not introduce audible or visual noise in the APE. In order to confirm that the overflights over the APE were not focused on particular historic resources in the APE, the dataset of departure overflights and arrival overflights was mapped over the APE in Attachments A and B respectively. Attachment A shows that the APE areas closest to the airport are already dense with overflights but the flights become more disperse as the APE moves to the southwest. However, Attachment B, which displays a year of arrival radar tracks, show that the APE is already heavily overflown over the full extent of the APE.

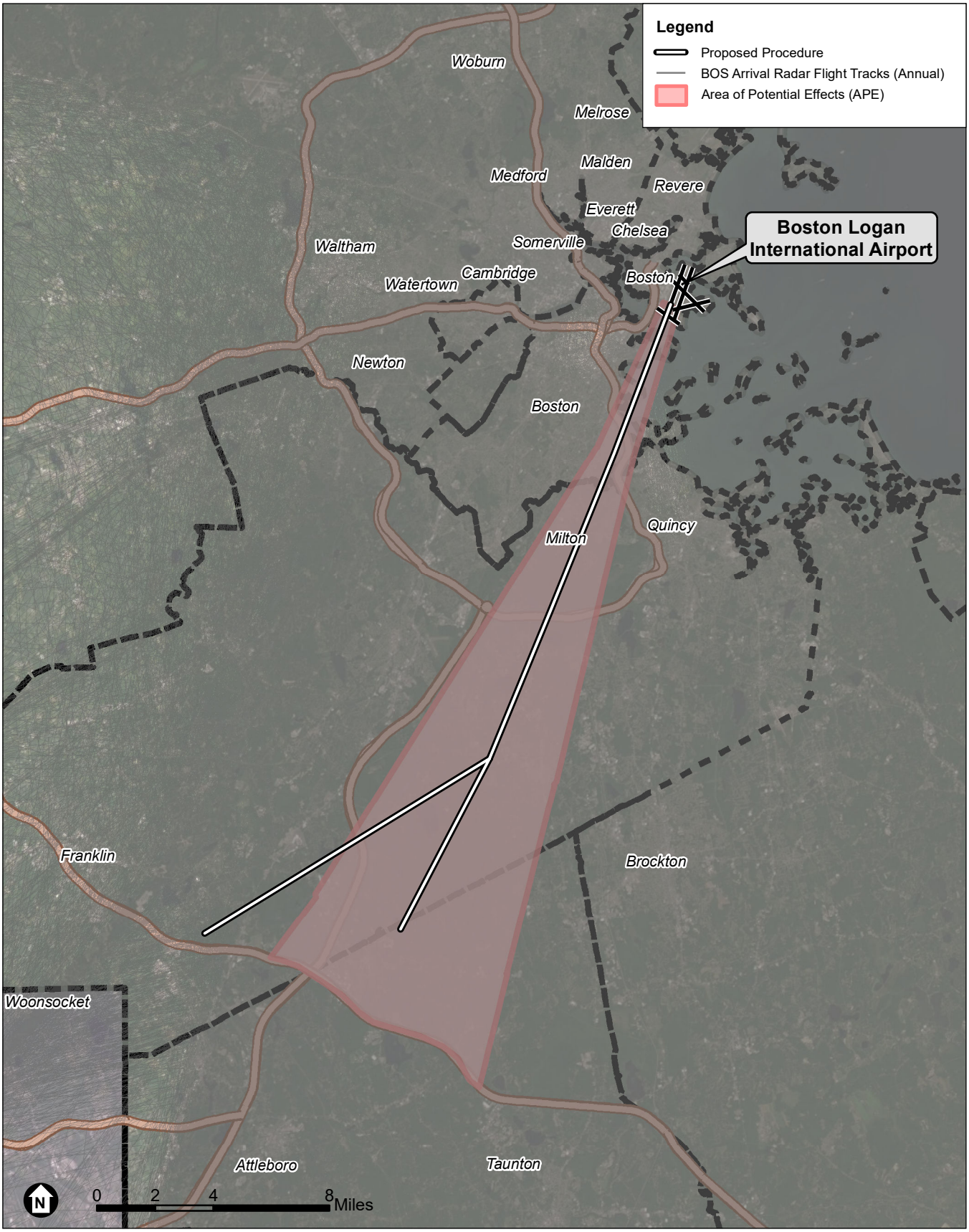
For more information on the analyses performed as a part of the Draft EA, please visit www.faabostonworkshops.com for a copy of the Draft EA. More information on the noise analysis can be found at www.faabostonworkshops.com/noise-visualization/ and in Sections 3.4.6 and 4.6 of the Draft EA. The Noise Modeling Technical Report is included in Appendix D of the Draft EA.



SOURCE: Esri; RoVolus, 2021; ESA, 2021

Boston Logan RNAV (GPS) RWY 4L EA

Attachment A
Area of Potential Effects and Departure Radar Flight Tracks



SOURCE: Esri; RoVolus, 2021; ESA, 2021

Boston Logan RNAV (GPS) RWY 4L EA

Attachment B
Area of Potential Effects and Arrival Radar Flight Tracks

Finding of No Adverse Effect Criteria

In order to establish a Finding of No Adverse Effect, the Proposed Action must not meet any of the criteria spelled out in the FAA's Section 106 Handbook, which are based on criteria in ACHP's section 106 regulations in 36 CFR Part 800. This section presents why the Proposed Action does not meet any of these criteria.

- Does the Proposed Action physically destroy or damage the property?
    - The Proposed Action will not have any physical impact on any property. The Proposed Action changes the location of arrival flights in the airspace around Boston Logan International Airport.

- Does the Proposed Action alter the property in any way that is consistent with the Secretary of the Interior's Standards for Treatment of Historic Properties (36 CFR Part 68)?
    - The Standards guide the design and implementation of physical changes to historic properties. This may include changes in use, material repair or substitution, or modification of historically important features. The Proposed Action is located in the airspace above historic resources does not result in any changes in use, material alteration, or physical modifications to these resources.

- Does the Proposed Action remove a property from its historic location?
    - The Proposed Action does not remove any property from its location.

- Does the Proposed Action change the character of the property's use, or of physical features within the property's setting that contribute to its historic significance?
    - The Proposed Action does not change the character of a property's use or any physical features in any historical property's setting.
    - Any changes to setting as a result of the Proposed action would be audible or visual features which are discussed in the following criterion.

- Does the Proposed Action introduce an atmospheric, audible, or visual feature to the area that would diminish the integrity of the property's significant historic features?
    - Audible: there will not be an introduction of audible noise as a result of the Proposed Action. Furthermore, the noise impacts of the Proposed Action on all of the historic resources in the APE will either decrease noise exposure or cause increases that are orders of magnitude below the significance thresholds for DNL aircraft noise as described in FAA Order 1050.1F and therefore will not cause an introduction of audible impact on any of the properties.
    - Visual: there will not be an introduction of visual impacts as a result of the Proposed Action. Furthermore, the entire APE currently experiences 268 average daily overflights as described in the above analysis. The Proposed Action will add less than 1 additional overflight per day. This increase will not change the current visual features of any historic resource in the APE, as depicted in Attachment B.

- Does the Proposed Action result in neglect of a property which would result in its deterioration, transfer, sale or lease?

- The Proposed Action will not cause any property to be sold or transferred.

Given the results discussed in this letter, the FAA is putting forth at this point a Proposed Finding of No Adverse Effect. This determination is based on the findings discussed in this letter, which includes that none of the NRHP listed properties reviewed herein were found to have a "quiet setting" as described in the FAA's Section 106 Handbook. Furthermore, the net change in aircraft operations as a result of the Proposed Action would be minimal and would not cause an adverse effect, including no physical impacts and no introduction of audible or visual impacts within the APE.

Public Meetings, Comments, and Consultation

The FAA conducted Virtual Public Workshops for the Draft EA on October 23rd, and October 28th, 2020. By attending the Virtual Public Workshops, participants were provided with an overview of the Draft EA which includes results from the noise analysis performed to assess the potential noise impacts of the Proposed Action on historic resources and populations located within the General Study Area. The MHC concurred with the APE on December 8, 2020 so the impacts were shown for historic resources throughout the entire Study Area. During the meeting, the FAA responded to a large number of questions from the community. These meetings were recorded and remain on the FAA's YouTube page for interested community members to review. During the meeting and other forms of engagement, the FAA received over 40 comments regarding the Proposed Action. The FAA is currently reviewing and developing responses to these comments to be shared with the public as part of the Final Environmental Assessment but it should be noted that none of the comments mention any potential impact to historic resources from the Proposed Action.

We look forward to hearing back from you on the FAA's proposed finding. We welcome the input from consulting parties on the historic properties considered as part of the analysis and on the finding itself. If you have any additional comments or questions on this undertaking, please contact me at veronda.johnson@faa.gov or at the address below.

Sincerely,

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